

ERP - PROJECT

SUGMAYA

END USER DOCUMENT

FOR

PLANT MAINTENANCE

CONDITION BASED MAINTENANCE

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1 DOCUMENT CONTROL

This is a controlled document and will be maintained on UJVNL portal.

Changes to this document will be recorded below and must be published to all interested parties.

1.1 DOCUMENT HISTORY

Version	Date	Author	VERSION DETAILS
V01	06-02-2018	Nimish Agrawal	First ISSUE

1.2 DISTRIBUTION

Date	Name	Purpose
	Mandeep Singh	For Information
	Brijesh Yadav	For Information

2 PROCESS OVERVIEW: CALIBRATION MAINTENANCE

The process of Condition based Maintenance (CBM) process consist of the following major activities:



- Measurement Data Collection of Equipment parameters under condition monitoring activity
 - Condition-based maintenance processing based on measurement data
1. Taking of Equipment parameter(s) reading at site by the condition monitoring group or concerned maintenance department personnel's.
 2. Maintenance plan is created by choosing plan category based on what should be the call object (e.g. Notification or Maint. order) of plan. Based on what is the frequency of maintenance, cycle time is given to the plan. If plan is counter based then the measurement counter number for the individual equipment/functional location will be maintained in plan. Respective reference object and task list is assigned to the maintenance plan. The call object is "Notification" & **Notification type Z4: Condition Monitoring** will be maintained in plan.
 - A **single cycle plan** is the simplest form of maintenance plan. Create a single cycle plan and define exactly one time-based or performance-based maintenance cycle, in which it is needed to specify the interval at which all the tasks of maintenance plan should be executed. It might be used, for example, for the 6-monthly maintenance of a DG Set or for the preventive maintenance of a Generator after every 2,000 running hours.
 - In contrast, **strategy plans** are used to show complex maintenance cycles. We create a strategy plan and assign a maintenance strategy in which we define the different maintenance cycles of the strategy (called as Packages) to be used. For example, it makes sense to use a strategy plan if different maintenance tasks for a Control oil station are due in different cycles: oil check every 2000 running hours and oil change every 4000 running hours.
 - In time based strategy plan, we can plan maintenance item for Weekly, Monthly, Quarterly or Half Yearly maintenance activities for total period of the plan
 3. Maintenance plan is scheduled so that the planned dates and call dates are displayed based on the scheduling parameters maintained in plan.
 4. The call object is generated based on call horizon and planned date. Notification **Z4** will be created in the system via the scheduling of maintenance plan
 5. Recording of these readings in the SAP system by creating Measurement Document(s) via upload of excel file with transaction code ZPM_CBM and entering measured values for the respective Measuring Points of the equipment.
 6. If any parameter's reading fall outside tolerance limits (as defined in the Measuring Point master record), required actions should be taken against it.
 7. In this case when the Measurement Document is saved, the system will create a Notification of type **Z5** (Condition Based Maint. Notification) on the Equipment, automatically in background with default data like Functional Location, Equipment, standard Notification text of abnormal condition, abnormal parameter reading along with other parameters readings of the same equipment, date & time etc.
 8. Scheduling of the automatically generated CBM Notification
 9. Receipt of the scheduled CBM Notification by the concerned maintenance department (Planner group).
 10. Review of Notification and then updating of Damage (defect) and related Cause codes in the CBM Notification by the maintenance dept. if required after inspection of the equipment at site.
 11. Creation of CBM Order type '**ZM05**' for the CBM Notification by the responsible maintenance dept.
 12. Planning of required resources, e.g. Materials and external services, and Permits in the order.
 13. Processing of the CBM order by the maintenance dept. in usual manner. CBM/Predictive Maintenance order can only be created from **Z5** Notification, it cannot be created via scheduling of maintenance plan.
 14. Applying permit(s) for work if required
 15. Release of order by authorized person/supervisor in maintenance dep't.
 16. Issuing of permit(s) by Operation dep't or concerned agency

17. Issue of materials from store.
18. Execution of work at site by internal manpower and/or external agency.
19. Work Completion (WOCO) of maintenance order, which denotes permit cancellation request in system.
20. Return of permit(s) by Maintenance and closing of the same by Operations
21. Untagging/Normalisation of Isolations by operations dep't
22. Time confirmation of order operations (internal) by maintenance dep't
23. Entry of technical findings (Damage, cause, tasks etc.) and Malfunction end time in predictive/CBM notification by maintenance dep't
24. Completion of tasks in notification and subsequently Notification completion (NOCO)
25. Technical Completion (TECO) of order.
26. Month-end settlement of Maintenance order by F&A dep't.

Pre-requisites:

- Create master data of Measuring Points of Equipment, in the SAP system, for the parameters which need to be captured under condition monitoring.
- The Measuring Points should be created under category C (Condition monitoring parameter), since automatic CBM notifications will be created by system only for the measuring point readings which are in cat. C and not for cat. M (Meas. Point/ Counter (general))
- Damage and Cause codes, related to equipment condition, should be available and linked to the Equipment master record using Catalog profile if possible
- Equipment BOM (bill of materials) should have been maintained in the SAP system if possible

Icons:

	Caution
	Note

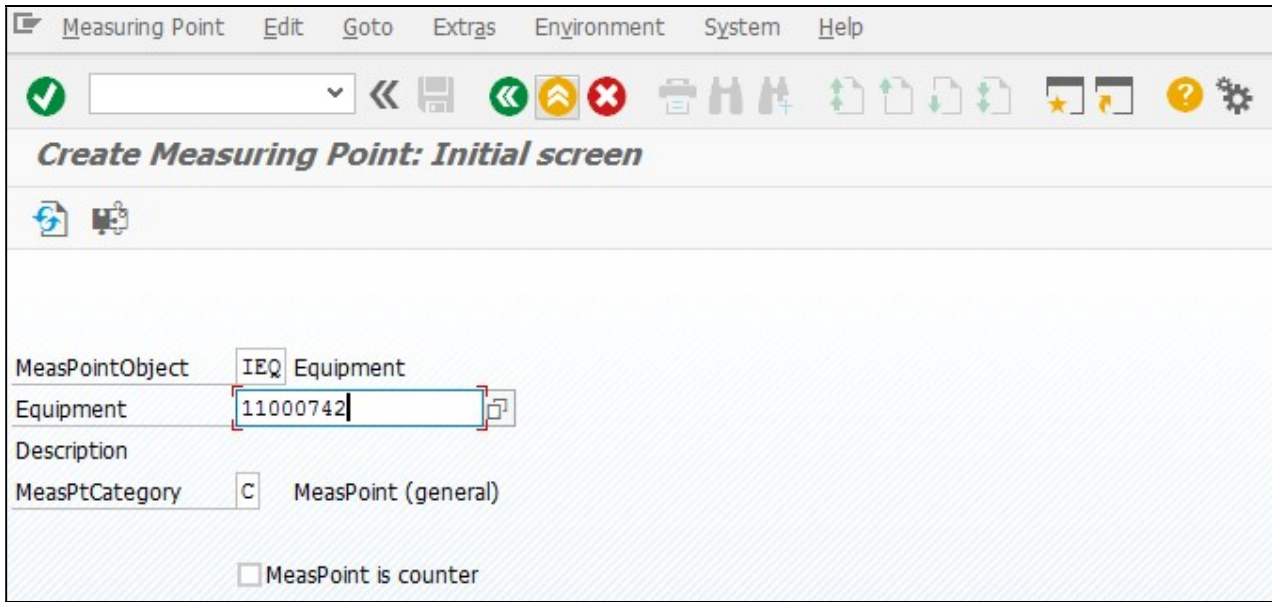
Abbreviations:

PM	Plant Maintenance
MTP	"Maintenance Planning" group in the Plant
WCM	Work Clearance Management
WAP	Work Approval
WCA	Work Clearance Application
WCD	Work Clearance Document
PTW	Permit to Work

3 CREATE MEASURING POINT

Menu Path	SAP Menu → Logistics → Plant Maintenance → Management of Technical Objects → Environment → Measuring Point → Create
Transaction Code	IK01

On running IK01, we get the initial screen as shown below:



Step No	Field Name	Description	User Action and Values
1	MeasPointObject	Measuring point object.	Enter Measuring point object. IEQ- for equipment
2	Equipment	Equipment number	Enter Equipment number 11000742
3	Description	Description	Short text description of the equipment is selected
4	MeasPt. Category	Identifies the category of the object that has the measuring point.	Enter M for general
5	MeasPoint is Counter	Indicates if the measuring point is a counter	

Press "Enter" key or select "Enter" icon . Create Measuring Point: Master Data screen is open

Measuring Point Edit Goto Extras Environment System Help

✔ ⏪ 📁 ⏪ ⏩ ✖ 🖨️ 🏠 🔍 ↕ 📄 📄 📄 📄 📅 📅 ? ⚙️

Create Measuring Point: General Data

Additional Data... 🔗 100 Last Measurement Document...

Measuring point Cat. Condition Monitoring Parameter

MeasPosition

Description 📄 ☐

Equipment

Description

General data

Characteristic Temperature

CharactUnit Degrees Celsius MeasPoint is counter

Decimal places FloatPointExp.

Code group ValCode sufficient

Assembly

AuthorizGroup

MeasReadTransf. Supported Transfer of 📄

Target value

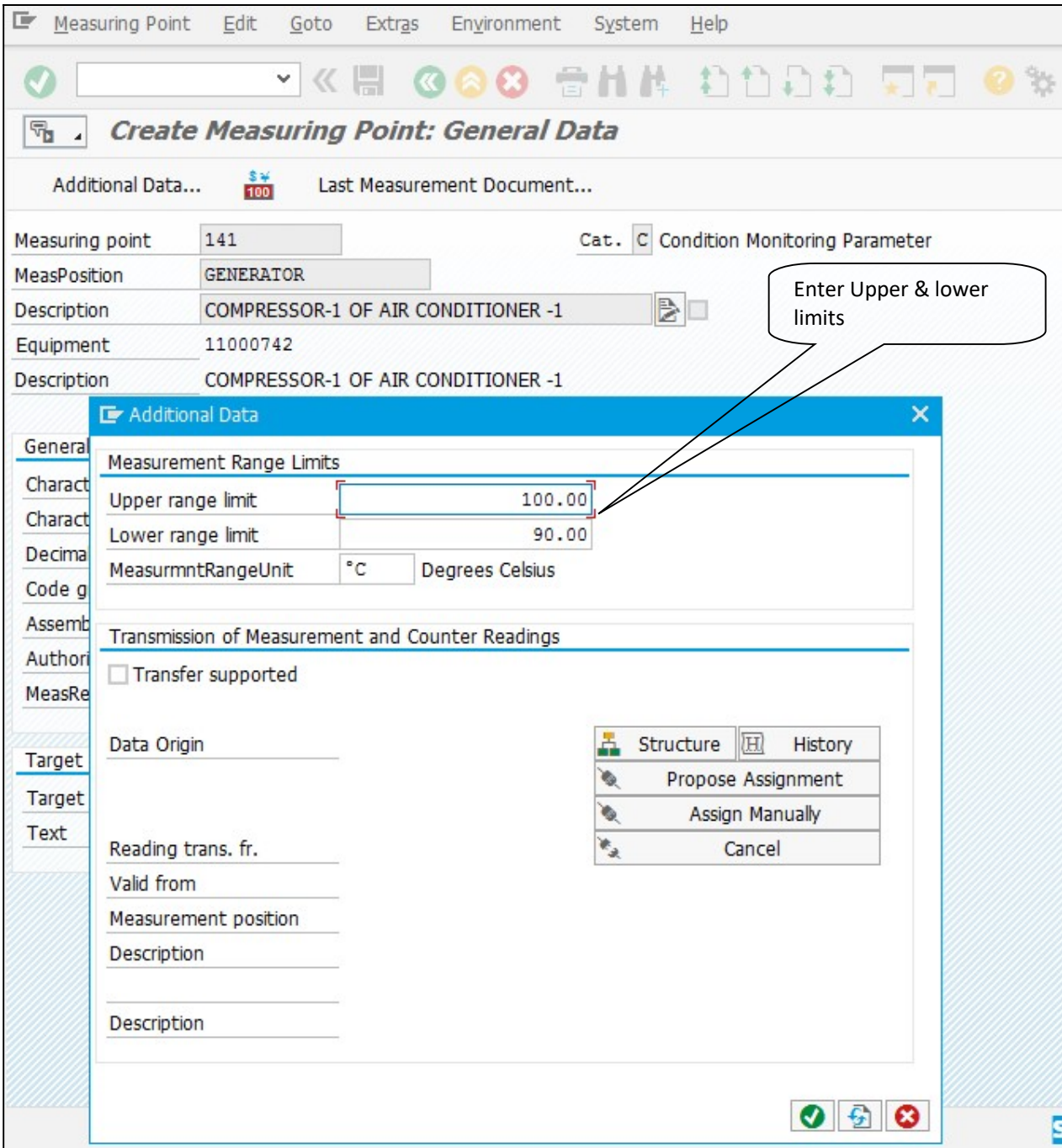
Target value

Text

Step No	Field Name	Description	User Action and Values
1	Meas. Position	Measuring Point's Position at equipment	Enter position code for The measuring point
2	Description	Description of Measuring Point's Position at equipment	Enter description
3	Characteristic	Characteristics	Entre characteristics DEGREE_CELCIUS
4	Code group	Valuation codes for the measurement readings.	Enter valuation code
5	Target Value	Target value of measuring reading for smooth running of equipment.	Enter target value of reading 95
6	Text	Text for target value	
7	In case of counter CntrOverReadg	Measuring point overflow reading	
8	AnnualEstimate	Used with maintenance plans to calculate the maintenance intervals (counter-based maintenance). For a	

	<p>counter. Enter estimated annual miles, gallons, or hours. The cursor can be placed anywhere in the field to begin typing. The reading will be right justified during 'save'.</p>	
--	---	--

Click on Additional Data... Button.



The screenshot displays the 'Create Measuring Point: General Data' application window. The main form contains the following data:

- Measuring point: 141
- Cat.: C Condition Monitoring Parameter
- MeasPosition: GENERATOR
- Description: COMPRESSOR-1 OF AIR CONDITIONER -1
- Equipment: 11000742
- Description: COMPRESSOR-1 OF AIR CONDITIONER -1

An 'Additional Data' dialog box is open, showing the 'Measurement Range Limits' section with the following values:

- Upper range limit: 100.00
- Lower range limit: 90.00
- MeasurmntRangeUnit: °C Degrees Celsius

A callout bubble points to the range limit fields with the text: "Enter Upper & lower limits".

Step No	Field Name	Description	User Action and Values
1	Upper limit	Upper limit for reading where equipment can run	100
2	Lower limit	Upper limit for reading where equipment can run	90

Click  button to save Measuring Point 

System will give a message in the message bar that your Measuring Point saved as shown above.

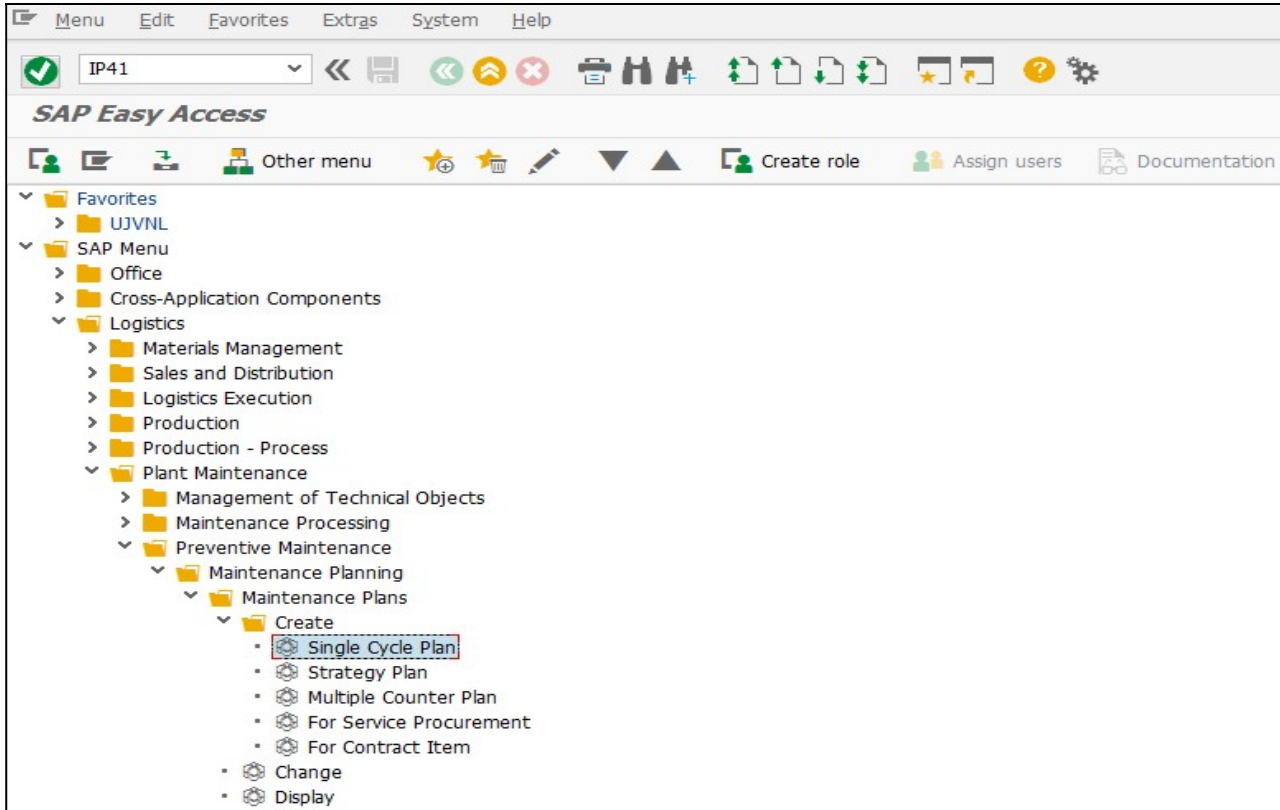


In the same way multiple measuring points can be created for 1 equipment if required

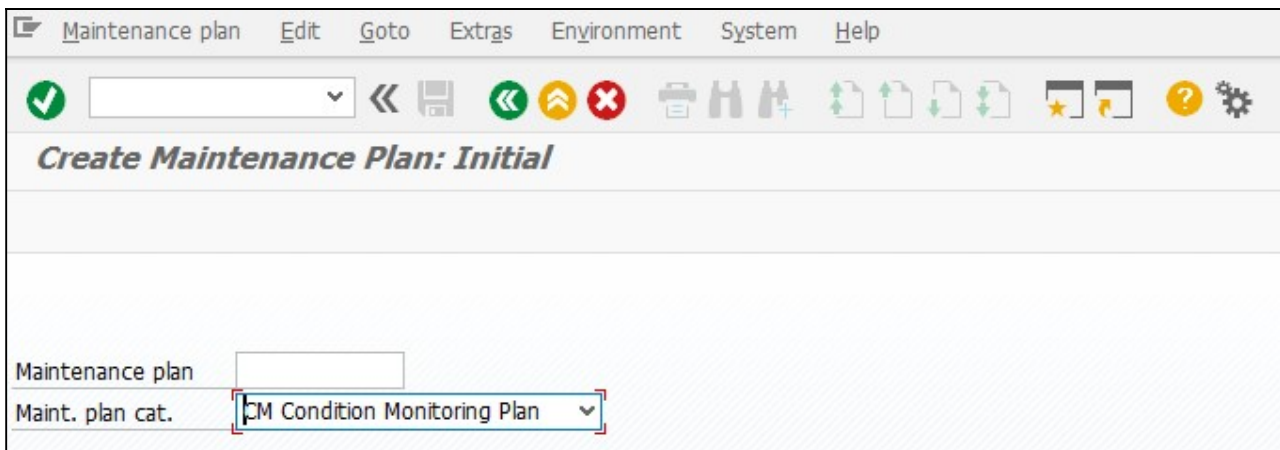
4 MAINTENANCE PLANS

Maintenance plans merge the records of specific strategies, task lists, items and measuring points (when necessary) to generate a recurring maintenance schedule for the resultant orders/notifications which are copied from the task lists.


Menu Path	SAP Menu → Logistics → Plant Maintenance → Preventive Maintenance → Maintenance Planning → Maintenance Plans → Create → Single cycle plan
Transaction Code	IP41




On running IP41, we get the initial screen as shown below:



Step No	Field Name	Description	User Action and Values
1	Maintenance plan	The number assigned to this maintenance plan to locate it within SAP	Unless external number assignment is being used, this field will be automatically filled in when the record is saved. Internal Numbering
2	Maint. plan cat	Determines what document will be created by the maintenance call	Select the maintenance plan category. Choices are orders, notifications.

Press "Enter" key or select "Enter" icon . Create Create Maintenance Plan: Single Cycle Plan Master Data screen will open

Maintenance plan Maintenance Plan for CBM Process 



Maint. plan hea...

Maintenance plan cycle | Maintenance plan scheduling parameters | Maintenance plan additional data

Cycle/Unit Day

Cycle text

Offset/Unit

Counter  

Item Item location

Maintenance Item Maintenance Plan for CBM Process

Reference object

Functional loc.	<input type="text" value="1305-COM-AICR-AICS"/>	AIR CONDITIONING SYSTEM
Equipment	<input type="text" value="11000742"/>	COMPRESSOR-1 OF AIR CONDITIONER -1
Assembly	<input type="text"/>	

Planning data

Planning plant	<input type="text" value="1305"/> Khatima	Planner group	<input type="text" value="001"/> OPH & ELE Maint
Notifictn type	<input type="text" value="Z4"/> Condition Monitoring	Priority	<input type="text"/>
Main WorkCtr	<input type="text" value="E&M_PH2"/> / <input type="text" value="1305"/> MECHANICAL MAINTENANCE-1		
Sales Document	<input type="text"/> / <input type="text"/>		

Determine tasks

Task list

Cat	TL group	GrpCr	Description
<input type="text"/>	/ <input type="text"/>	/ <input type="text"/>	<input type="text"/>


Step No	Field Name	Description	User Action and Values
1	Maintenance plan	A concise description in the header for the maintenance plan	Enter a description of the plan.
2	Cycle/Unit	The cycle length or frequency which the plan will be based on. A basic label to describe the numeric data in a field	Enter a number for the cycle length and select a unit of measure
3	Cycle text	A concise description of the cycle	Add a free text description
4	Offset/unit	A one-time waiting period before starting the cycle length of the package	Enter a number to be multiplied by the strategy unit, which the plan will wait before the first order will be automatically called
5	Counter	A performance monitoring gauge attached/linked to a piece of equipment or functional location	Enter a counter number which is linked to the reference object.
6	FunctLocation	Functional Location Identifier of technical object assigned to plan	Enter Functional Object Identifier
7	Equipment	Equipment Identifier of technical object assigned to plan	Enter Equipment Identifier
8	Assembly	Assembly Identifier of technical object assigned to plan	Enter Assembly Identifier
9	Planning plant	Identifier for Plant where technical objects and planning object are defined	Enter Planning Plant if different from default from technical object

10	Planner group	Identifier for persons responsible for maintaining plan profiles	Enter Planner Group if different from default from technical object
11	Order type	Identifier for Order type. Different order types may have different options	Enter Order Type if different from default from technical object
12	MaintActivityType	Identifier for Maintenance Activity Type	Enter Maintenance Activity Type if different from default from technical object
13	Main WorkCtr	Identifier for Work Center which has responsibility for maintenance of technical object	Enter Main Work Center if different from default from technical object
14	(Main WorkCtr) / Plant	Identifier for Plant that Main Work Center is assigned to	Enter Main Work Center Plant if different from default from technical object
15	Business area	Identifier for Business Area organizational unit	Enter Business Area if different from default from technical object
16	Priority	Importance level for processing	Enter Priority if different from default from technical object
17	Task list / General task list	Section Header	Select the Task List to be assigned to orders via this plan
18	Object list item	Tab Strip	Used to assign multiple technical objects to the plan
19	Item Location	Tab Strip	Displays location information of technical objects

The screenshot shows the SAP 'Create Maintenance Plan: Single cycle plan' configuration interface. The main title is 'Create Maintenance Plan: Single cycle plan'. Below the title, there are tabs for 'Maintenance plan cycle', 'Maintenance plan scheduling parameters', and 'Maintenance plan additional data'. The 'Maintenance plan scheduling parameters' tab is active. It contains several input fields and sections:

- Date determination:** Shift Factor Late Compl. (input field), Tolerance (+) (input field), Shift Factor Early Compl. (input field), Tolerance (-) (input field), Cycle modification factor (input field, value 1.00), and Factory calendar (input field, value IN).
- Call control parameter:** Call horizon (input field, value 90), Scheduling period (input field, value 365, unit DAY), and a checkbox for 'Completion Requirement'.
- Scheduling indicator:** Radio buttons for 'Time', 'Time - key date' (selected), and 'Time - factory caldr'.
- Start scheduling:** Start of cycle (input field, value 19.01.2018).

Step No	Field Name	Description	User Action and Values
1	Maintenance plan scheduling parameters	Tab Strip	
2	SF later confirmation	Modifies future scheduled call dates by the indicated percentage should the completion of the original call date is late by more than the tolerance	Accept the default or modify
3	Tolerance (+)	The percentage work can be completed in advance of the scheduled call date and not change shift the call dates of future work	Accept the default or modify
4	SF earlier confirmation	Modifies future scheduled call dates by the indicated percentage should the completion of the original call date be earlier by more than the tolerance	Accept the default or modify
5	Tolerance (-)	The percentage work can be completed after the scheduled call date and not change shift the call dates of future work	Accept the default or modify
6	Cycle modification factor	Used in maintenance plans, it allows the planner the ability to multiply cycle length of all the packages used in the plan by a certain factor to the maintenance show up more or less frequently.	Accept the default or modify
7	Call horizon	Call horizon is how much of the cycle length you want to wait before S creates the next order automatically	Accept the default or modify
8	Scheduling Period	Used to determine the length of time for which the system creates maintenance calls during scheduling of a maintenance plan.	Accept the default or modify
9	Requires confirmation	The next call is generated only when the previous one has been closed.	Put a check in the box if this is desired.
10	Time	A maintenance strategy based on the 12-month calendar. Ex: A 30-day maintenance package will be due every 30 days, 7/1, 7/31, 8/29, etc.	Accept the default or modify. Used with time based plans
11	Time-key date	A maintenance strategy based on the 12-month calendar, which allows the planner to select a specific date the maintenance will be performed on, regardless of the day of the week. Ex: every 20th of the month.	Accept the default or modify. Used with time based plans
12	Time-factory caldr	A maintenance strategy based on the 12 months calendar which only takes working days into consideration. Ex: A 30-day maintenance package will have maintenance due ever 30 working days (usually 6 calendar weeks)	Accept the default or modify. Used with time based plans

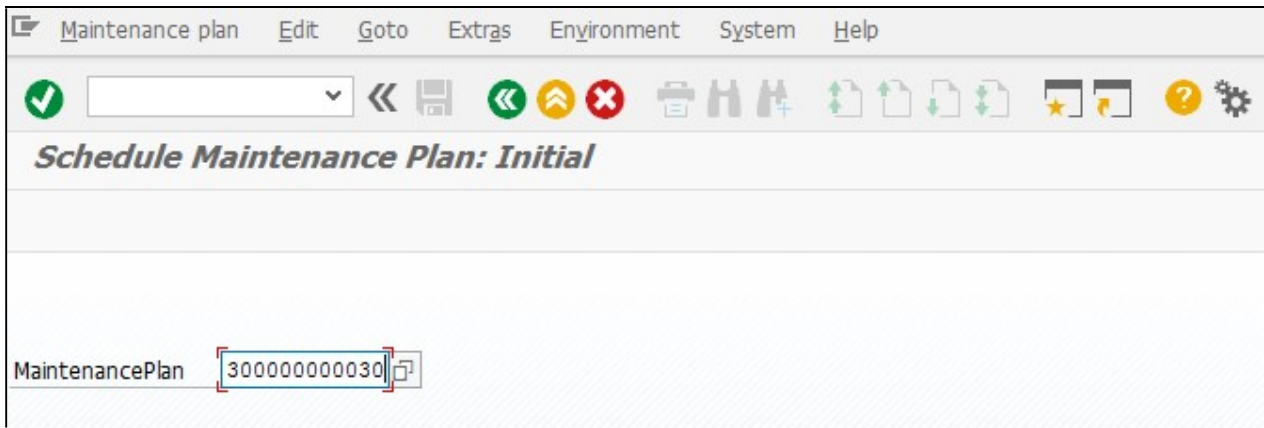
Click  button to save Maintenance Plan ✔ Maintenance plan 300000000030 created
 System will give a message in the message bar that your Maintenance Plan created as shown above.

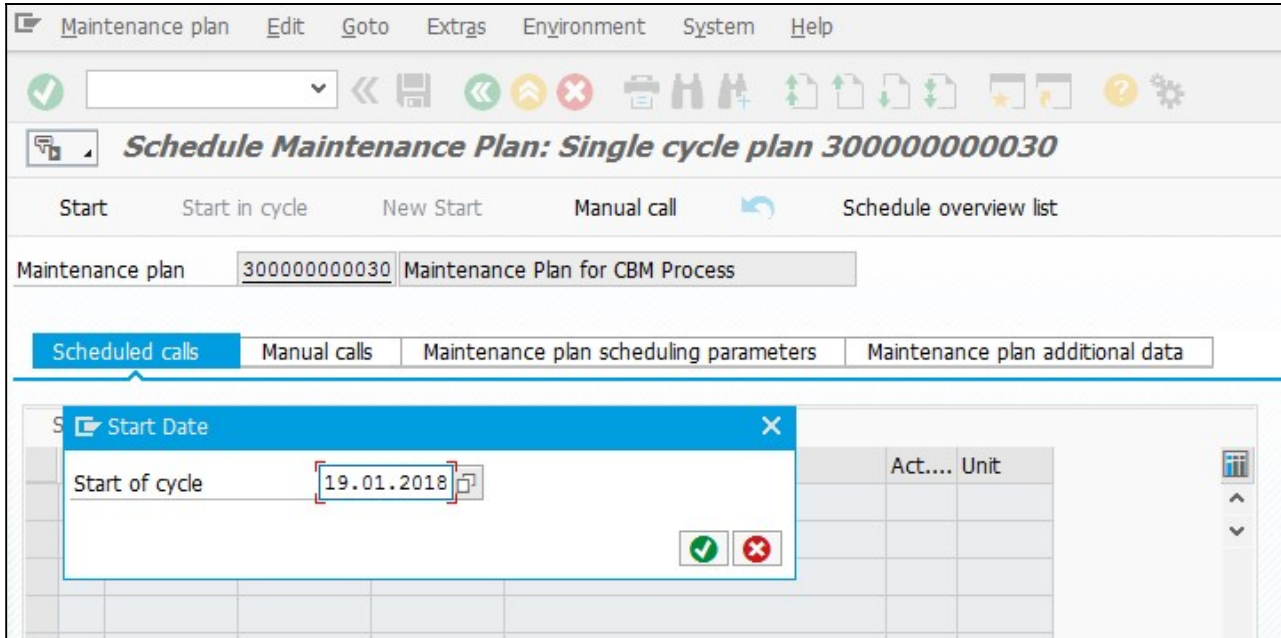
5 SCHEDULING OF MAINTENANCE PLANS

To generate call objects (Maintenance orders/Notifications) the plan needs to be scheduled

Menu Path	SAP Menu → Logistics → Plant Maintenance → Preventive Maintenance → Maintenance Planning → Scheduling for Maintenance Plans → Schedule
Transaction Code	IP10

Step No	Field Name	Description	User Action and Values
1	Maintenance plan number	Enter the maintenance plan number	





Step No	Field Name	Description	User Action and Values
1	Start of cycle	Enter the start date from which the maintenance plan needs to be scheduled	Enter a suitable date. The maintenance plans are scheduled from this start date.

The Start of cycle date is defaulted from maintenance plan. It can be changed if required.

Press to continue.

A list is displayed with all the plan dates and call dates as per the settings in maintenance plan for the entire duration of Scheduling period (1 year in our case).

C...	PlanDate	Call date	Completi...	Scheduling Type / Status	Act....	Unit
1	19.02.2018			New start Save to call		
2	19.03.2018	16.03.2018		Scheduled Hold		
3	19.04.2018	16.04.2018		Scheduled Hold		
4	19.05.2018	16.05.2018		Scheduled Hold		
5	19.06.2018	16.06.2018		Scheduled Hold		
6	19.07.2018	16.07.2018		Scheduled Hold		
7	19.08.2018	16.08.2018		Scheduled Hold		
8	19.09.2018	16.09.2018		Scheduled Hold		
9	19.10.2018	16.10.2018		Scheduled Hold		
10	19.11.2018	16.11.2018		Scheduled Hold		
11	19.12.2018	16.12.2018		Scheduled Hold		
12	19.01.2019	16.01.2019		Scheduled Hold		



The list of calls as per cycle length is displayed with status as **Scheduled Hold** which signifies that the plan is scheduled but the date on which the call object (Order or Notification) is to be generated is in future.



The call for which Call Date has arrived is shown in above image
The call object (order or notification) is generated as soon as save button is clicked.

Important Icons:




- **Manual release** of a call -This can be used to release a call object i.e. to call an order or a notification whose date lies in the future and is still on hold and provided that the previous call has occurred.



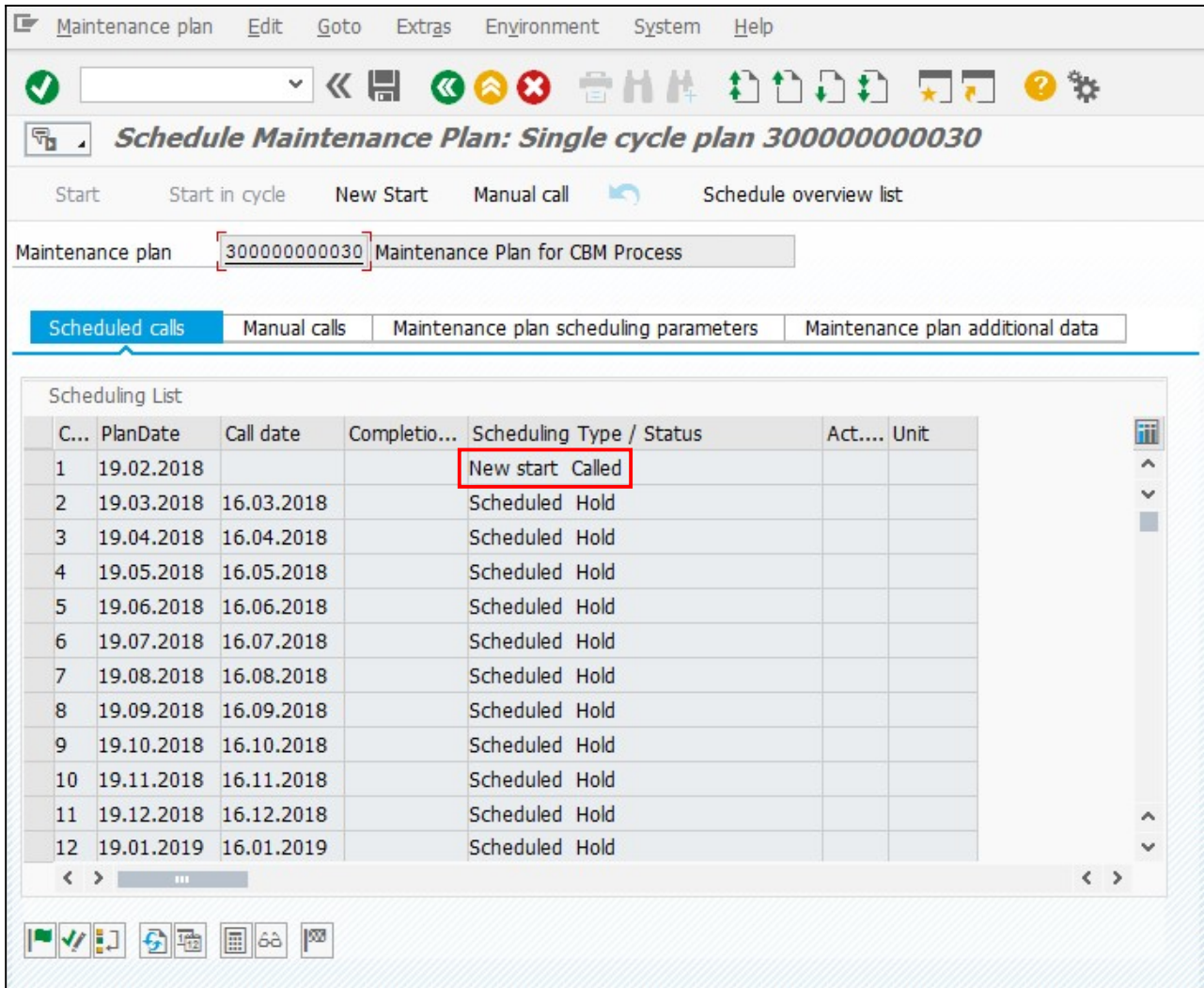
- **Fix call** - This functionality can be used to fix a call for a date, provided the previous call has occurred. The fixing can only be done between the previous call date and next call date.




- **Skip call** -This functionality can be used to skip a call which is on hold provided the previous call is released or skipped or called.

Click  button to save the scheduling of Maintenance Plan ✔ Maintenance plan 300000000030 scheduled
System will give a message in the message bar that your Maintenance Plan schedule as shown above.

The scheduling status displays the status as Called i.e. the notification has been called.



C...	PlanDate	Call date	Completi...	Scheduling Type / Status	Act....	Unit
1	19.02.2018			New start Called		
2	19.03.2018	16.03.2018		Scheduled Hold		
3	19.04.2018	16.04.2018		Scheduled Hold		
4	19.05.2018	16.05.2018		Scheduled Hold		
5	19.06.2018	16.06.2018		Scheduled Hold		
6	19.07.2018	16.07.2018		Scheduled Hold		
7	19.08.2018	16.08.2018		Scheduled Hold		
8	19.09.2018	16.09.2018		Scheduled Hold		
9	19.10.2018	16.10.2018		Scheduled Hold		
10	19.11.2018	16.11.2018		Scheduled Hold		
11	19.12.2018	16.12.2018		Scheduled Hold		
12	19.01.2019	16.01.2019		Scheduled Hold		

To display the notification, select the line and below a display icon  can be used to display the notification.

The screenshot shows the SAP 'Schedule Maintenance Plan' interface. At the top, the title bar reads 'Schedule Maintenance Plan: Single cycle plan 300000000030'. Below this, there are buttons for 'Start', 'Start in cycle', 'New Start', 'Manual call', and 'Schedule overview list'. A text field shows 'Maintenance plan 300000000030 Maintenance Plan for CBM Process'. A callout bubble points to this field with the text 'Select the line'. Below the text field are tabs for 'Scheduled calls', 'Manual calls', 'Maintenance plan scheduling parameters', and 'Maintenance plan additional data'. The 'Scheduled calls' tab is active, displaying a 'Scheduling List' table. A callout bubble points to the first row of the table with the text 'Click on this button'. At the bottom of the interface, there is a toolbar with several icons, one of which is highlighted with a red box.

C...	PlanDate	Call date	Completi...	Scheduling Type / Status	Act....	Unit
1	19.02.2018			New start Called		
2	19.03.2018	16.03.2018		Scheduled Hold		
3	19.04.2018	16.04.2018		Scheduled Hold		
4	19.05.2018	16.05.2018		Scheduled Hold		
5	19.06.2018	16.06.2018		Scheduled Hold		
6	19.07.2018	16.07.2018		Scheduled Hold		
7	19.08.2018	16.08.2018		Scheduled Hold		
8	19.09.2018	16.09.2018		Scheduled Hold		
9	19.10.2018	16.10.2018		Scheduled Hold		
10	19.11.2018	16.11.2018		Scheduled Hold		
11	19.12.2018	16.12.2018		Scheduled Hold		
12	19.01.2019	16.01.2019		Scheduled Hold		



In case a plan contains more than one item, the number of notifications generated will be equal to the number of items in a maintenance plan.

The notification Type-Z4 has been generated on the due date.

PM Notification Edit Goto Extras Environment System Help

Display PM Notification: Condition Monitoring

Notification: 400000090 24 Maintenance Plan for CBM Process

Notific. Status: OSNO

Notification Header Reference Object Location data Notification Header

Reference object

Functional loc.	1305-COM-AICR-AICS	AIR CONDITIONING SYSTEM
Equipment	11000742	COMPRESSOR-1 OF AIR CONDITIONER -1
Assembly		

Subject

Coding

Description: Maintenance Plan for CBM Process

Subject Long Text

Responsibilities

Planner group: 001 / 1305 OPH & ELE Maint

Main WorkCtr: E&M_PH2 / 1305 MECHANICAL MAINTENANCE-1

Reported by: CHAKRAVARTHY Notif.date: 19.02.2018 11:44:58

Start/End Dates

Required Start	19.02.2018	00:00:00	Priority	
Required End	19.02.2018	00:00:00		

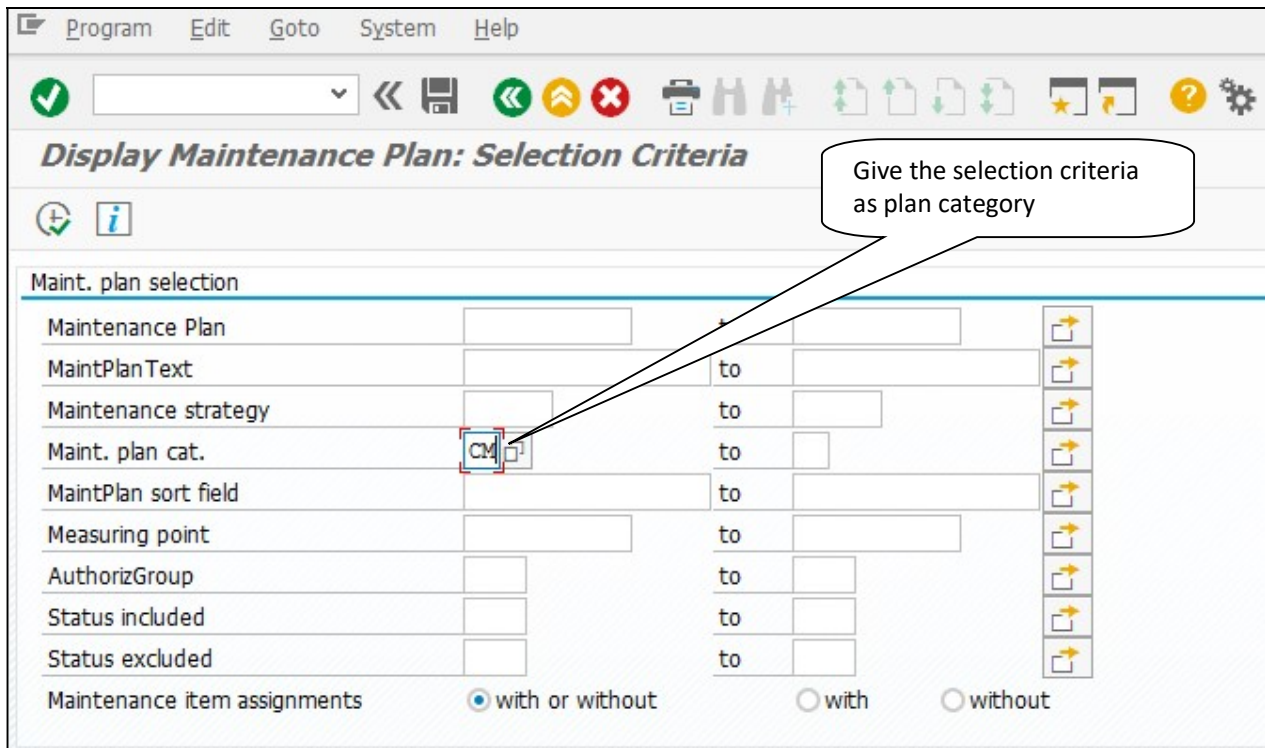
The maintenance order can be processed in the same way as explained in Breakdown Process user manual

6 LIST EDITING OF MAINTENANCE PLANS

To display a list of maintenance plans.

Menu Path	SAP Menu → Logistics → Plant Maintenance → Preventive Maintenance → Maintenance Planning → Maintenance Plans → List Editing → Display
Transaction Code	IP16

Give the selection criteria based on which the plans need to be scheduled.



Press F8 key or click on execute button



List of all plans meeting this search criteria is displayed.

List Edit Goto Maintenance plan Environment Settings System Help

Display Maintenance Plan: Maintenance Plans Selected

Maintenance plan Maintenance items

S	MntPlan	MaintPlan dscrptn	Strat.
<input type="checkbox"/>	300000000000	Maint. Plan for CBM Process	
<input type="checkbox"/>	300000000010	Condition Monitoring Plan for Compressor	
<input type="checkbox"/>	300000000011	Maint. Plan for CBM	
<input type="checkbox"/>	300000000012	Maint. Plan for CBM LSMW	A
<input type="checkbox"/>	300000000013	Maint. Plan for CBM LSMW	
<input type="checkbox"/>	300000000014	Maint. Plan for CBM	
<input type="checkbox"/>	300000000015	Maint. Plan for CBM	
<input type="checkbox"/>	300000000016	Maint. Plan for CBM	
<input type="checkbox"/>	300000000017	Maint. Plan for CBM LSMW	
<input type="checkbox"/>	300000000018	Maint. Plan for CBM LSMW	
<input type="checkbox"/>	300000000019	Maint. Plan for CBM LSMW	
<input type="checkbox"/>	300000000020	Maint. Plan for CBM LSMW	
<input type="checkbox"/>	300000000030	Maintenance Plan for CBM Process	



User specific maintenance plan list layout variant can be saved after setting the columns & their sequence. This way every time the user will get the plan list layout defaulted when he will execute the transaction IP16.

7 SCHEDULING OVERVIEW

Menu Path	SAP Menu → Logistics → Plant Maintenance → Preventive Maintenance → Maintenance Planning → Scheduling for Maintenance Plans → Scheduling Overview → List Display
Transaction Code	IP24

Maintenance item selection

Maint. plan cat.	<input type="text" value="CM"/>	to	<input type="text"/>	<input type="button" value="F4"/>
MaintPlan sort field	<input type="text"/>	to	<input type="text"/>	<input type="button" value="F4"/>
Maintenance Plan	<input type="text"/>	to	<input type="text"/>	<input type="button" value="F4"/>
Maintenance item	<input type="text"/>	to	<input type="text"/>	<input type="button" value="F4"/>
Maintenance strategy	<input type="text"/>	to	<input type="text"/>	<input type="button" value="F4"/>
Maint. item text	<input type="text"/>	to	<input type="text"/>	<input type="button" value="F4"/>
Functional Location	<input type="text"/>	to	<input type="text"/>	<input type="button" value="F4"/>
Equipment	<input type="text"/>	to	<input type="text"/>	<input type="button" value="F4"/>
Assembly	<input type="text"/>	to	<input type="text"/>	<input type="button" value="F4"/>
Material	<input type="text"/>	to	<input type="text"/>	<input type="button" value="F4"/>
Serial Number	<input type="text"/>	to	<input type="text"/>	<input type="button" value="F4"/>

Settlement rule: with or w/o w/ w/o
 with object list


Maintenance dates

Order	<input type="text"/>	to	<input type="text"/>	<input type="button" value="F4"/>
Notification	<input type="text"/>	to	<input type="text"/>	<input type="button" value="F4"/>
Entry Sheet	<input type="text"/>	to	<input type="text"/>	<input type="button" value="F4"/>
Scheduled start date	<input type="text"/>	to	<input type="text"/>	<input type="button" value="F4"/>
Completion date	<input type="text"/>	to	<input type="text"/>	<input type="button" value="F4"/>
Scheduling status	<input type="text"/>	to	<input type="text"/>	<input type="button" value="F4"/>

Maintenance status: with or w/o w/ w/o
 Not blocked

Work scheduling/task list data

Planning plant	<input type="text"/>	to	<input type="text"/>	<input type="button" value="F4"/>
Planner group	<input type="text"/>	to	<input type="text"/>	<input type="button" value="F4"/>

Press F8 key or click on execute button 
 The output will be as displayed below:

List Edit Goto Environment Settings System Help

Scheduling overview list form: Maintenance Scheduling Overview List

Maintenance item Maintenance plans

S	Maintenance item	MntPlan	Strat.	Maintenance item description	Call Number	Start date	Order
	162	300000000010		Compressor Motor	13	03.11.2018	
	173	300000000020		LSMW	1	16.12.2017	
	173	300000000020		LSMW	2	16.01.2018	
	173	300000000020		LSMW	3	16.02.2018	
	173	300000000020		LSMW	4	16.03.2018	
	173	300000000020		LSMW	5	16.04.2018	
	173	300000000020		LSMW	6	16.05.2018	
	173	300000000020		LSMW	7	16.06.2018	
	173	300000000020		LSMW	8	16.07.2018	
	173	300000000020		LSMW	9	16.08.2018	
	173	300000000020		LSMW	10	16.09.2018	
	173	300000000020		LSMW	11	16.10.2018	
	173	300000000020		LSMW	12	16.11.2018	
	173	300000000020		LSMW	13	16.12.2018	
	173	300000000020		LSMW	14	16.01.2019	
	222	300000000030		Maintenance Plan for CBM Process	1	19.02.2018	
	222	300000000030		Maintenance Plan for CBM Process	2	19.03.2018	
	222	300000000030		Maintenance Plan for CBM Process	3	19.04.2018	
	222	300000000030		Maintenance Plan for CBM Process	4	19.05.2018	
	222	300000000030		Maintenance Plan for CBM Process	5	19.06.2018	
	222	300000000030		Maintenance Plan for CBM Process	6	19.07.2018	
	222	300000000030		Maintenance Plan for CBM Process	7	19.08.2018	
	222	300000000030		Maintenance Plan for CBM Process	8	19.09.2018	
	222	300000000030		Maintenance Plan for CBM Process	9	19.10.2018	
	222	300000000030		Maintenance Plan for CBM Process	10	19.11.2018	
	222	300000000030		Maintenance Plan for CBM Process	11	19.12.2018	
	222	300000000030		Maintenance Plan for CBM Process	12	19.01.2019	
	222	300000000030		Maintenance Plan for CBM Process	13	19.02.2019	



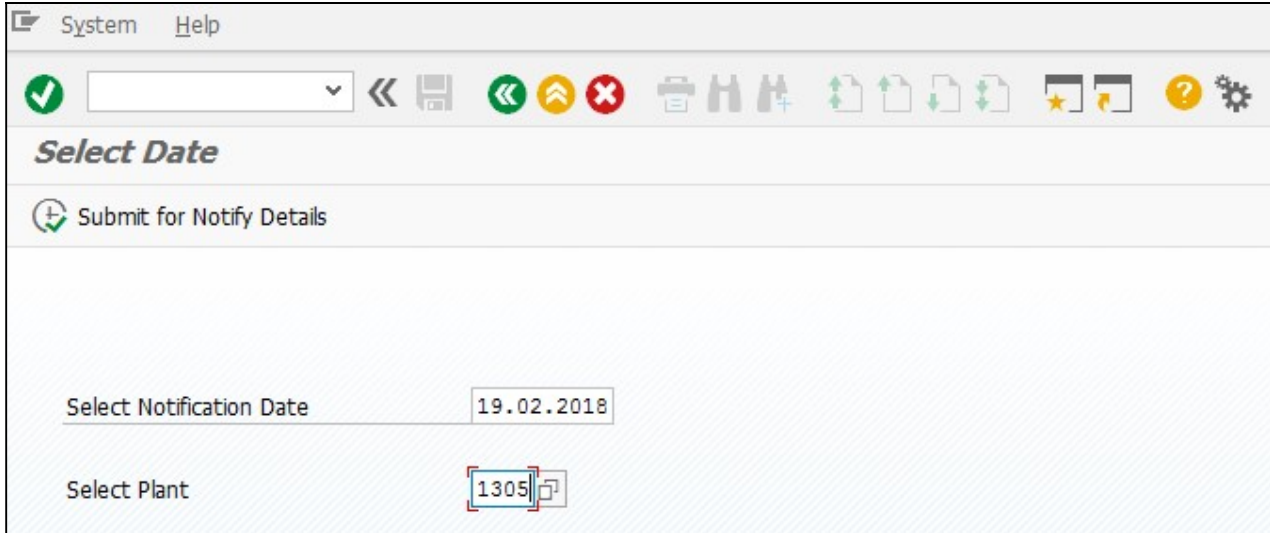
User specific notification list layout variant can be saved after setting the columns & their sequence. This way every time the user will get the notification list layout defaulted when he will execute the transaction IP24.

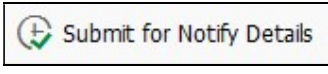


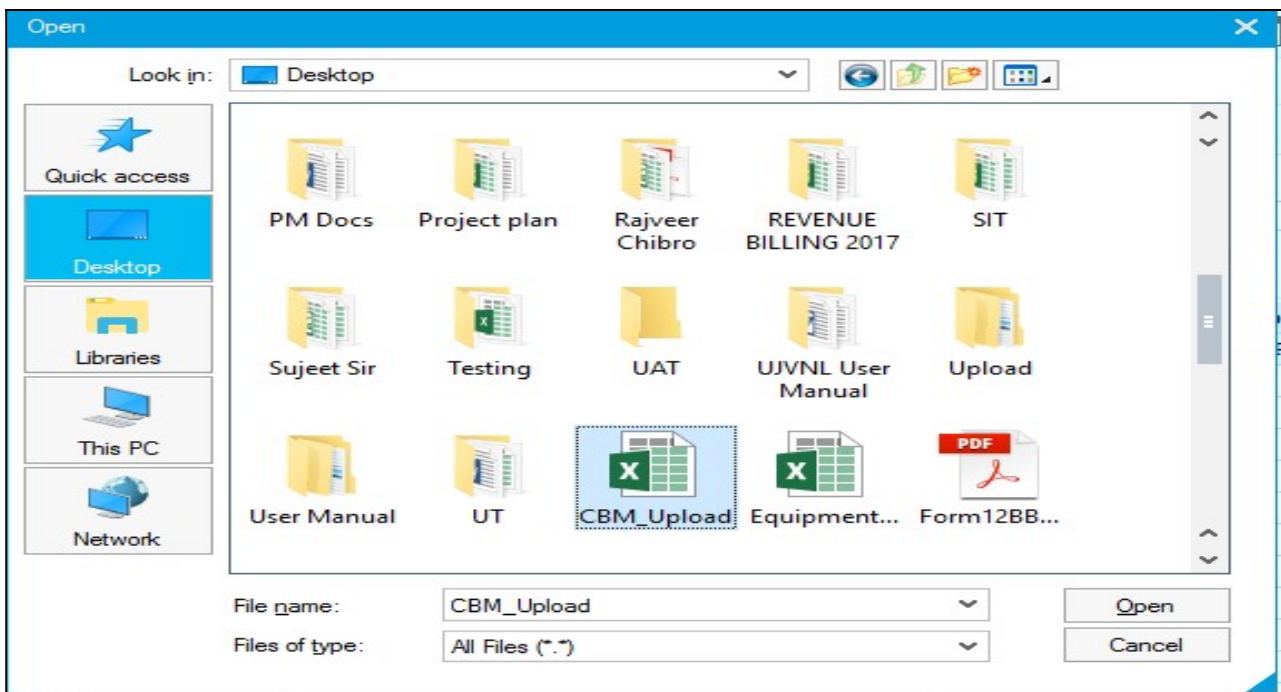
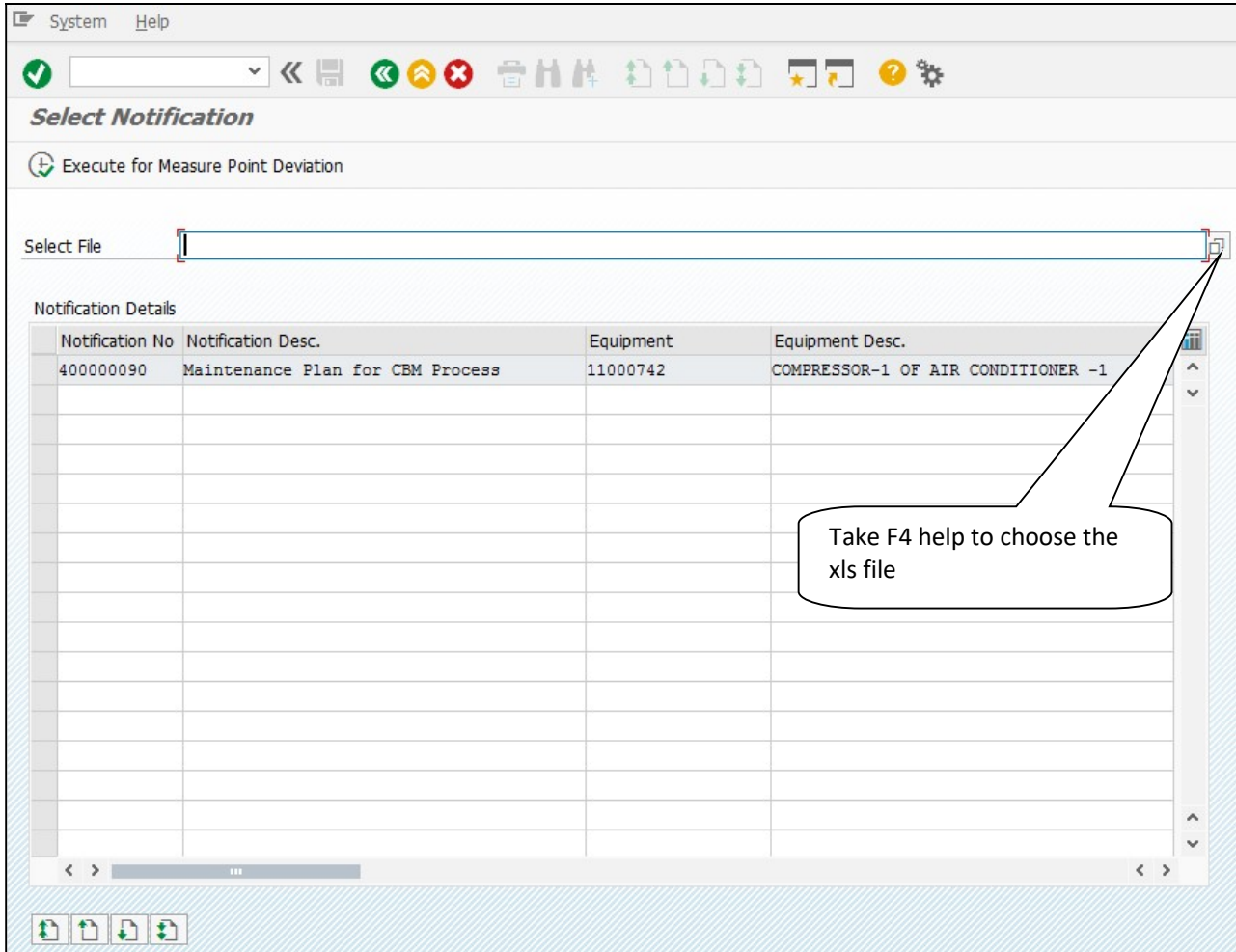
For Scheduling Overview & Simulation t-code IP19 can be used. It has the option of displaying scheduling overview in graphical form as well, apart from tabular form.

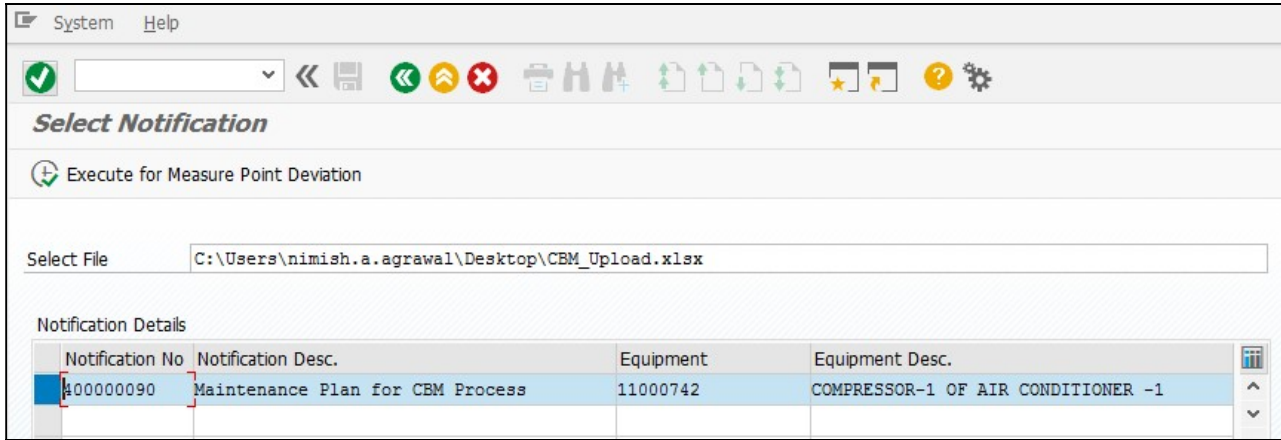
8 UPLOAD OF READING AGAINST Z4 NOTIFICATION

Use transaction ZPM_CBM to upload reading of equipment saved in xls file. Sample of xls file is shown at end. Enter notification date. System give list of notification for which reading are due.

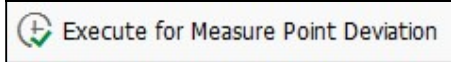


Clicking on  button, will give the list of notification due on date.

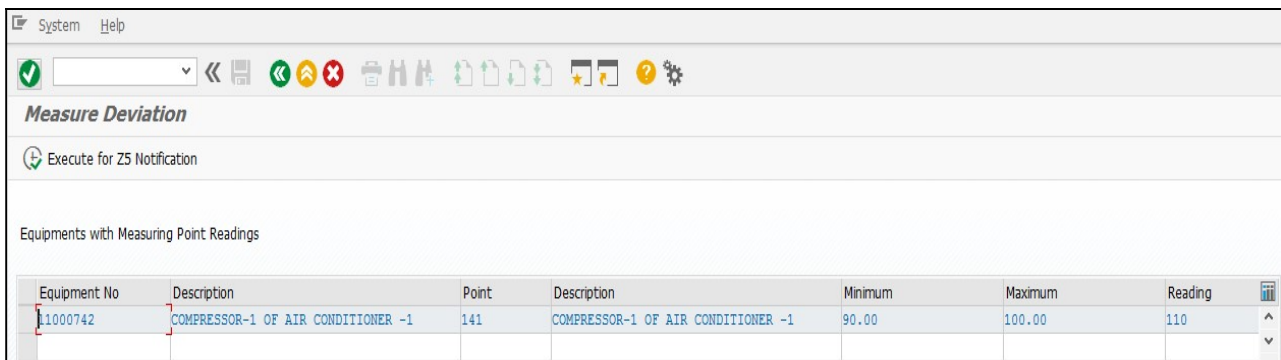




Select required notifications and click on Execute for Measure Point Deviation button

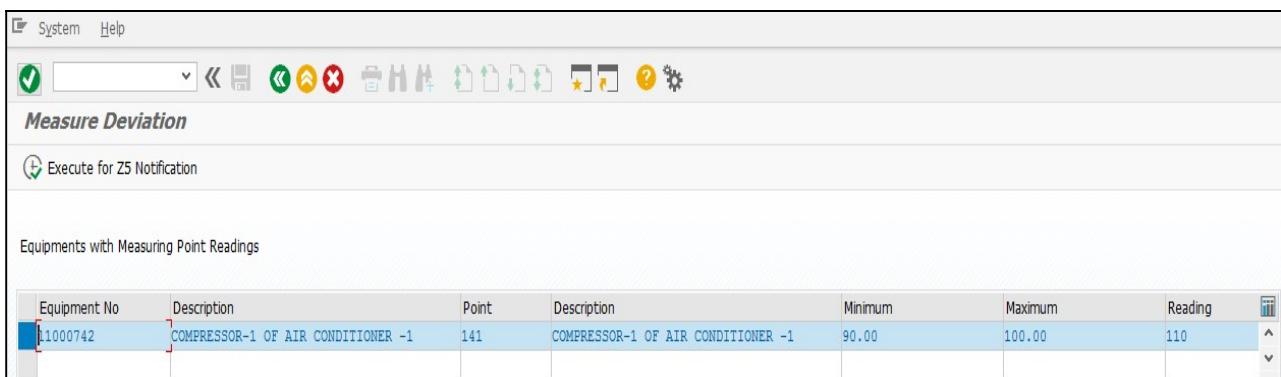


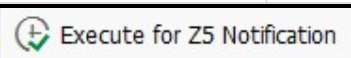
System will read the text file and display list of measuring point with reading, max/min limit

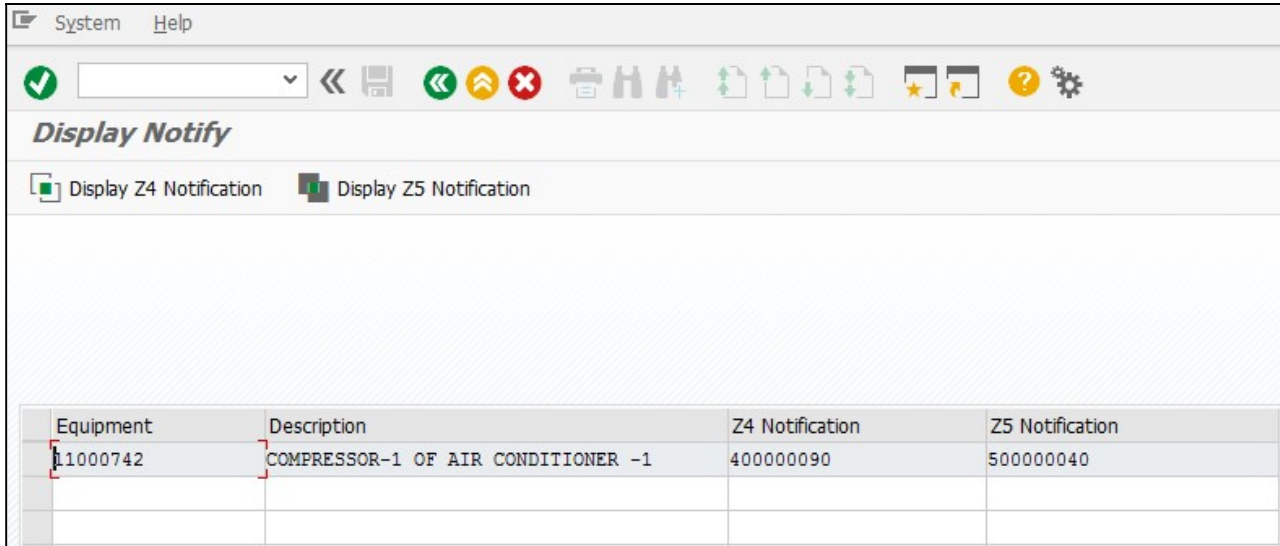


Select points for which reading is deviating from lower & upper limits and Z5 notification to be created for

corrective action. Select & click on  button

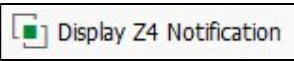


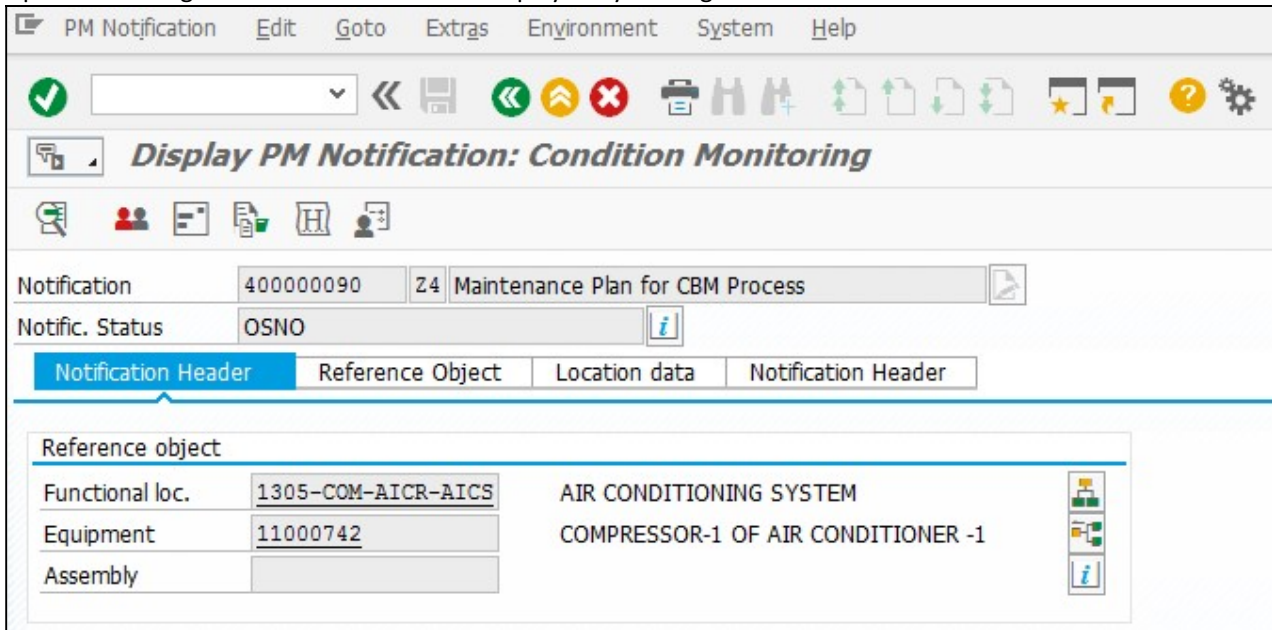
After clicking on  button, system will update all readings in Z4 notification created via the scheduling of maintenance plan and create Z5 predictive maintenance notification for corrective measure, for selected equipment's only.



System will give a message in the message bar that Notification saved as shown below



Updated readings in Z4 notification can be displayed by clicking on  button



Go to EXTRA – MEASR DOC, will display reading uploaded based on selection on previous steps.

9 PROCESSING OF Z5 PREDICTIVE/CBM NOTIFICATION

- Z5 Notification is created by system to implement corrective measure based on reading uploaded.
- Processing & execution of notification & order can be processed in the same way as explained in Breakdown Maintenance Process User Manual.

The screenshot shows a software interface for managing PM Notifications. The title bar reads "PM Notification" and the window title is "Display PM Notification: Predictive/CBM Notif". The notification ID is 500000040, and the status is OSNO. The notification is titled "Z5 Predictive Maintenance Plan for CBM Proc".

Reference Object

Functional loc.	1305-COM-AICR-AICS	AIR CONDITIONING SYSTEM
Equipment	11000742	COMPRESSOR-1 OF AIR CONDITIONER -1
Assembly		

Subject

Coding: [] []
 Description: Predictive Maintenance Plan for CBM Proc
 Subject Long Text: []

Responsibilities

Planner group: 001 / 1305 OPH & ELE Maint
 Main WorkCtr: E&M_PH2 / 1305 MECHANICAL MAINTENANCE-1
 Reported by: [] Notif.date: 19.02.2018 12:12:33

Start/End Dates

Required Start: 19.02.2018 12:12:33 Priority: O Opportunity
 Required End: [] 00:00:00



Remember to close Z4 notification which was created via scheduling of Maintenance Plan

10 FILE UPLOADING FORMAT

	A	B	C	D	E
1	Equipment	Equipment Description	Measuring Point	Measuring Point Description	Reading
2	11000742	COMPRESSOR-1 OF AIR CONDITIONER -1	141	GENERATOR	110
3					
4					
5					
6					
7					
8					

11 GLOSSARY

Company code	SAP term for legal entity for which a complete self-contained set of accounts can be drawn up for external statutory reporting
Plant	In Logistics, a plant is an organizational unit for dividing an enterprise according to production, procurement, maintenance, and materials planning. A place where materials are produced, or goods and services are provided.
Maintenance Plant	Maintenance plant is a plant in which the technical objects of the company are installed and where maintenance is done.
Maint. Planning Plant	A plant in which maintenance tasks are planned and prepared. The planning responsibility for a maintenance plant is defined using a planning plant. Maintenance plant are assigned to planning plants. Planning is performed for the Maintenance plants in the planning plants.
Plant Section	Plant section is subdivision of Maintenance Plant into different process / functional areas.
Planner Group	Planner Group is a group of persons responsible for maintenance planning in a Planning plant.
Functional Location	The business object functional location is an organizational unit within Logistics, that structures the maintenance objects of a company according to functional, process-related or spatial criteria. A functional location represents the place at which a maintenance task is to be performed.
Equipment	An equipment is known as an individual object in the system that is maintained independently. Equipment can be installed at different functional locations. You can create an individual equipment in an organization based on the object-based structure of a technical system.
Work Center	An organizational unit that defines where and when an operation must be performed. The work center has an available capacity. The activities performed at or by the work center are evaluated by charge rates, which are determined by cost centers and activity types. Work centers can be: <ul style="list-style-type: none"> - Machines - People - Production lines
Task List	It's the set of operations to be performed for the maintenance of a technical object
Object Type	You can assign each piece of equipment and each functional location to a technical object type. This allows pieces of equipment that have the same use, for example, to be combined into groups. You can use this grouping for evaluating your master data or maintenance data.
Catalog Profile	Catalog profile will group distinct characteristics of the notification which will cater the needs of management to analyze the company assets & to ascertain the decisions accordingly. Catalog profiles have sub class of code groups which will group the codes as per their feature.

12 APPENDIX

12.1 T - CODES FOR REOPRTS

T-Code	Description
IW38	PM Order List Change
IW39	PM Order List Display
IW47	Display PM Order Confirmation using Operation List
IK07	Measuring Point List Display
IK08	Measuring Point List Change
IP15	Maintenance Plan List Change
IP16	Display Maintenance Plan
IP18	Maintenance Item List Display
IP24	Scheduling overview list form
MM60	Materials List
MMBE	Display Material Stock Overview

12.2 T - CODES FOR PM

T-Code	Description
IK01	Create Measuring Point
IK02	Change Measuring Point
IK03	Display Measuring Point
IK11	Create Measuring Document
IK12	Change Measuring Document
IK13	Display Measuring Document
IK14	Collective (Equipment / Functional Location) Measuring Document Create
IK16	Collective Measuring Document Create
IK17	Collective (Equipment / Functional Location) Measuring Document Display
IK18	Collective (Equipment / Functional Location) Measuring Document Change
IK21	Collective (Functional Location) Measuring Document Create
IK22	Collective (Equipment) Measuring Document Create
IP41	Create single cycle Maintenance Plan
IP01	Create Strategy Maintenance Plan
IP02	Change Maintenance Plan
IP03	Display Maintenance Plan
IP10	Schedule Maintenance Plan
IP30	Deadline Monitoring
IW21	Create PM Notification
IW22	Change PM Notification
IW23	Display PM Notification
IW31	Create PM Order
IW32	Change PM Order
IW33	Display PM Order
IW34	Create Notification Order
IW41	PM Order Confirmation
IW42	Overall Completion Confirmation
IW43	Display PM Order Confirmation
IW45	Cancel PM Order Confirmation
ZPM_CBM	Conditions Based Monitoring